Serial No. 09/545,334
Group Art Unit: 1638

IN THE CLAIMS:

1. (Currently amended) A method for producing fertile, transgenic plants wherein cytokinin content ~~expression~~, in developing seeds and/or related maternal tissue, ~~of a polynucleotide encoding a cytokinin biosynthetic or cytokinin catabolic enzyme~~ is ~~modified~~ increased relative to ~~expression in an untransformed but otherwise isogenic plant~~ nontransgenic siblings, comprising:

transforming plant host cells with a genetic construct, said construct comprising a tissue-preferred, tissue-specific, or temporally-regulated promoter driving expression in developing seeds or related maternal tissue, wherein said promoter is operably linked to an isolated polynucleotide encoding a bacterial isopentenyl transferase ~~either a cytokinin biosynthetic enzyme or a cytokinin catabolic enzyme~~, wherein the isolated polynucleotide is expressed in the transformed plant cell; and

regenerating and recovering said fertile transgenic plants, wherein said plants exhibit one or more traits selected from the group consisting of improved seed size, decreased seed abortion, and increased seed set during unfavorable environmental conditions.

2. (Previously presented) The method according to Claim 1 wherein the transformation is carried out by a process selected from the group consisting of electroporation, PEG poration, particle bombardment, silicon fiber delivery, microinjection, and Agrobacterium-mediated transformation.

3. (Previously presented) The method according to Claim 2 wherein said process is particle bombardment.

4. (Previously presented) The method according to Claim 2 wherein said process is Agrobacterium-mediated transformation.

5. (Canceled)

6. (Canceled)

7. (Previously presented) The method according to Claim 1 wherein said host cells are from a monocotyledonous plant and said promoter is end 2.

8. (Previously presented) The method according to Claim 1 wherein said promoter directs embryo-preferred expression.

9. (Withdrawn)

10. (Previously presented) The method according to Claim 1 wherein said promoter directs endosperm-preferred expression.

11. (Withdrawn)
12. (Canceled)
13. (Canceled)
14. (Canceled)
15. (Canceled)
16. (Canceled)
17. (Currently amended) A fertile transgenic plant comprising a genetic construct stably integrated into the genome thereof, said construct comprising a tissue-preferred, tissue-specific, or temporally-regulated promoter driving expression in developing seeds and/or related maternal tissue, wherein said promoter is operably linked to an isolated polynucleotide encoding a bacterial isopentenyl transferase ~~a cytokinin biosynthetic enzyme or a cytokinin catabolic enzyme~~, and wherein said plants exhibit one or more traits selected from the group consisting of improved seed size, decreased seed abortion, and increased seed set during unfavorable environmental conditions, relative to nontransgenic siblings.
18. (Canceled)
19. (Canceled)
20. (Previously presented) The plant according to Claim 17 wherein said plant is monocotyledonous and said promoter is end2.
21. (Previously presented) The plant according to Claim 17 wherein said promoter directs embryo-preferred expression.
22. (Withdrawn)
23. (Previously presented) The plant according to Claim 17 wherein said promoter directs endosperm-preferred expression.
24. (Withdrawn)
25. (Canceled)
26. (Canceled)
27. (Canceled)
28. (Canceled)
29. (Canceled)
30. (Currently amended) An isolated recombinant DNA molecule comprising a promoter directing temporal and/or spatial gene expression in plant seeds and/or related maternal tissue, wherein said promoter is operably linked to an isolated

polynucleotide encoding a bacterial isopentenyl transferase ~~either a cytokinin biosynthetic enzyme or a cytokinin catabolic enzyme~~.

31. (Canceled)
32. (Previously presented) The DNA molecule according to Claim 30 wherein said seeds are from a monocotyledonous plant and said promoter is end2.
33. (Previously presented) The DNA molecule according to Claim 30 wherein said promoter directs embryo-preferred expression.
34. (Withdrawn)
35. (Previously presented) The DNA molecule according to Claim 30 wherein said promoter directs endosperm-preferred expression.
36. (Withdrawn)
37. (Canceled)
38. (Canceled)
39. (Canceled)
40. (Canceled)
41. (Canceled)
42. (Currently amended) Host plant cells comprising the ~~genetic construct~~ DNA molecule of Claim 30.
43. (Currently amended) A method for improving stress tolerance and yield stability in plants comprising stably transforming plant host cells with a genetic construct, said construct comprising a tissue-preferred, tissue-specific, or temporally-regulated promoter driving expression in developing seeds and/or related maternal tissue during the lag phase of plant seed development, wherein said promoter is operably linked to an isolated polynucleotide encoding a bacterial isopentenyl transferase ~~either a cytokinin biosynthetic enzyme or a cytokinin catabolic enzyme~~, and regenerating and recovering plants from said cells, wherein the introduced DNA is expressed in the transformed plants and said regenerated plants exhibit improved stress tolerance ~~and~~ or yield stability.
44. (Previously presented)The method according to Claim 43 wherein said preferential expression occurs from about 14 days prior to pollination to about 25 days after pollination.
45. (Original) The method according to Claim 43 wherein said preferential expression occurs from about 4 to about 21 days after pollination.

46. (Original) The method according to Claim 43 wherein said preferential expression occurs from about 4 to about 12 days after pollination.

47. (Original) The method according to Claim 43 wherein said preferential expression occurs from about 8 to about 12 days after pollination.

48. (Withdrawn)

49. (Canceled)

50. (Withdrawn)

51. (Withdrawn)

52. (Withdrawn)

53. (Canceled)

54. (Withdrawn)

55. (Withdrawn)

56. (Withdrawn)

57. (Canceled)

58. (Withdrawn)

59. (Withdrawn)

60. (Canceled)

61. (Canceled)

62. (Canceled)

63. (Canceled)

64. (New) A method for producing transgenic plants wherein cytokinin content, in developing seeds and/or related maternal tissue, is increased relative to nontransgenic siblings, comprising:

transforming plant host cells with a genetic construct, said construct comprising a tissue-preferred, tissue-specific, or temporally-regulated promoter driving expression in developing seeds or related maternal tissue, wherein said promoter is operably linked to an isolated polynucleotide encoding a bacterial isopentenyl transferase, and wherein the isolated polynucleotide is expressed in the transformed plant cells;

regenerating plants from said transformed cells; and

recovering said plants with increased cytokinin content by selecting viviparous seed on regenerated plants.

65. (New) A method for producing transgenic plants wherein cytokinin content, in developing seeds and/or related maternal tissue, is increased relative to nontransgenic siblings, comprising:

transforming plant host cells with a genetic construct, said construct comprising a tissue-preferred, tissue-specific, or temporally-regulated promoter driving expression in developing seeds or related maternal tissue, operably linked to an isolated polynucleotide encoding a bacterial isopentenyl transferase, wherein said construct further comprises an isolated polynucleotide encoding a selectable marker, and wherein the isolated polynucleotides are expressed in the transformed plant cells;

regenerating plants from said transformed cells; and

recovering said plants with increased cytokinin content by screening for presence of the selectable marker.